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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/747,601

12/29/2003

Dong Yeal Keum

SUN-DA-128T

6479

23557 7590 04/05/2007
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EXAMINER

JEFFERSON, QUOVAUNDA

ART UNIT

PAPER NUMBER

2823

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
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3 MONTHS

04/05/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No. 10/747,601	Applicant(s) KEUM, DONG YEAL	
	Examiner Quovaunda Jefferson	Art Unit 2823	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 November 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 and 2 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1 and 2 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on November 27, 2006 has been entered.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1 and 2 are rejected under 35 U.S.C. 103(a) as being unpatentable over Morihara et al, US Patent 6,271,564 in view of and Kakimoto et al, US Patent 5,166,087.

Regarding claim 1, Morihara teaches a method for fabricating a transistor comprising of forming a gate electrode **8** on a semiconductor substrate (figure 4), forming a first preliminary source/drain region **3** through a first ion implantation process using the gate electrode as a mask (figure 5), forming a first oxide layer **5, 6** on the substrate including the gate electrode (column 9, line 61-62), forming a nitride layer **9** on the first oxide layer (column 10, lines 28-37), forming a second oxide layer **10** over the nitride layer, forming spacers **10** on sidewalls of the gate electrode (column 10, lines 28-37), forming a second preliminary source/drain region **2** through a second ion implantation process using the spacers as a mask (figure 6), and removing the nitride layer and the first oxide layer on the surface of the substrate after forming the second preliminary source/drain region through the second ion implantation process using the spacers as mask (when contact 18 is formed, see figure 7).

Morihara fails to teach forming a pocket junction region, the pocket junction region being formed under the first preliminary source/drain region, and diffusing substantially all of the implanted ions in a horizontal direction of the substrate by performing a thermal treatment process for the resulting substrate.

Yoshida teaches forming a pocket junction region, the pocket junction region being formed under the first preliminary source/drain region (column 2., lines 3-7)

in order to prevent or minimize the punch-through phenomenon and short channel effects from occurring in the substrate.

It would be obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of Yoshida with that of Miorhara because pocket junction regions prevent or minimize the punch-through phenomenon and short channel effects from occurring in the substrate.

Morihara and Yoshida fail to teach diffusing substantially all of the implanted ions in a horizontal direction of the substrate by performing a thermal treatment process for the resulting substrate.

Kakimoto teaches diffusing substantially all of the implanted ions in a horizontal direction of the substrate by performing a thermal treatment process for the resulting substrate (column 2, lines 41-44) by teaching the performance of an annealing process, which not only diffused ion implantations performed in the substrate, the annealing process is also performed to recrystallize damage to the substrate during the ion implantation process

It would be obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of Kakimoto with that of Morihara and Yoshida because

an annealing process diffuses ions implanted into the substrate and recrystallizes damage to the substrate during the ion implantation process

Regarding claim 2, Kakimoto teaches performing a thermal treatment process prior to the removal of the nitride layer and the first oxide layer (column 2, lines 41-44 and figure 8g).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Quovaunda Jefferson whose telephone number is 571-272-5051. The examiner can normally be reached on Monday through Friday, 7AM to 3:30PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew Smith can be reached on 571-272-1907. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2823

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

QVJ
QVJ


FERNANDO L. TOLEDO
PRIMARY PATENT EXAMINER